

What is claimed is:

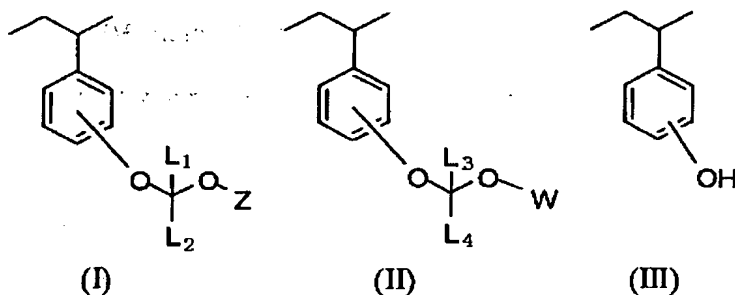
1. A positive resist composition for electron-beam, X-ray or EUV, comprising:

(a) a polymer capable of increasing its solubility in an alkali developer under action of an acid,

wherein the polymer has repeating units represented by formula (I), repeating units represented by formula (II) and repeating units represented by formula (III),

(b) a compound capable of generating an acid upon irradiation with an actinic ray or radiation; and

(c) a solvent:



wherein L_1 to L_4 , which are the same or different, each represents a hydrogen atom, a straight-chain, branched or cyclic alkyl group or an aralkyl group, and Z represents a straight-chain, branched or cyclic alkyl group or an aralkyl group,

W has the same meaning as Z , and

Z and L₁, or W and L₄, may be combined each other to form 5- or 6-membered ring, provided that the groups represented by Z and W are not the same.

2. The composition according to claim 1, wherein the group represented by W is a group having an alicyclic or aromatic group.

3. The composition according to claim 1, wherein the polymer (a) has a molecular weight dispersion degree of 1.5 or below.

4. The composition according to claim 1, wherein the content of the repeating unit represented by formula (I) is from 5 to 60 mole % based on the total repeating units in the resin.

5. The composition according to claim 1, wherein the content of the repeating unit represented by formula (I) is from 5 to 30 mole % based on the total repeating units in the resin.

6. The composition according to claim 1, wherein the content of the repeating unit represented by formula (II) is from 5 to 60 mole % based on the total repeating units in the resin.

7. The composition according to claim 1, wherein the content of the repeating unit represented by formula (II) is from 5 to 30 mole % based on the total repeating units in the resin.

8. The composition according to claim 1, wherein the content ratio of repeating units of formula (I) to repeating units of formula (II) in the resin is from 0.10:1 to 1:0.10.

9. The composition according to claim 1, wherein the content ratio of repeating units of formula (I) to repeating units of formula (II) in the resin is from 0.25:1 to 1:0.25.

10. The composition according to claim 1, wherein the polymer (a) further comprises a repeating unit corresponding to tertiary alkyl (meth)acrylate.

11. The composition according to claim 1, wherein the content of the component (b) is from 2 to 10% by weight based on the total solids in the composition.

12. The composition according to claim 1, further comprising a fluorine-based and/or silicon-based surfactant.

13. The composition according to claim 1, further comprising a basic compound.

14. A pattern formation method comprising steps of forming a resist film by using the positive resist composition claimed in claim 1, and exposing and developing said resist film.